

Investigation of the Multimode Classical Rayleigh-Taylor Instability

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We will present the results of an experimental investigation of the evolution of the Rayleigh-Taylor instability from an initial multimode perturbation placed at an embedded, or classical, interface. Multimode perturbations consisting of 2, 10 and 20 initial modes have been investigated. As the growth of the initial modes proceeds into the nonlinear regime, these modes begin to *couple*, producing a new generation of modes which will in turn couple. Eventually an *inverse cascade* is predicted wherein longer and longer wavelength structures will begin to dominate the flow.

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